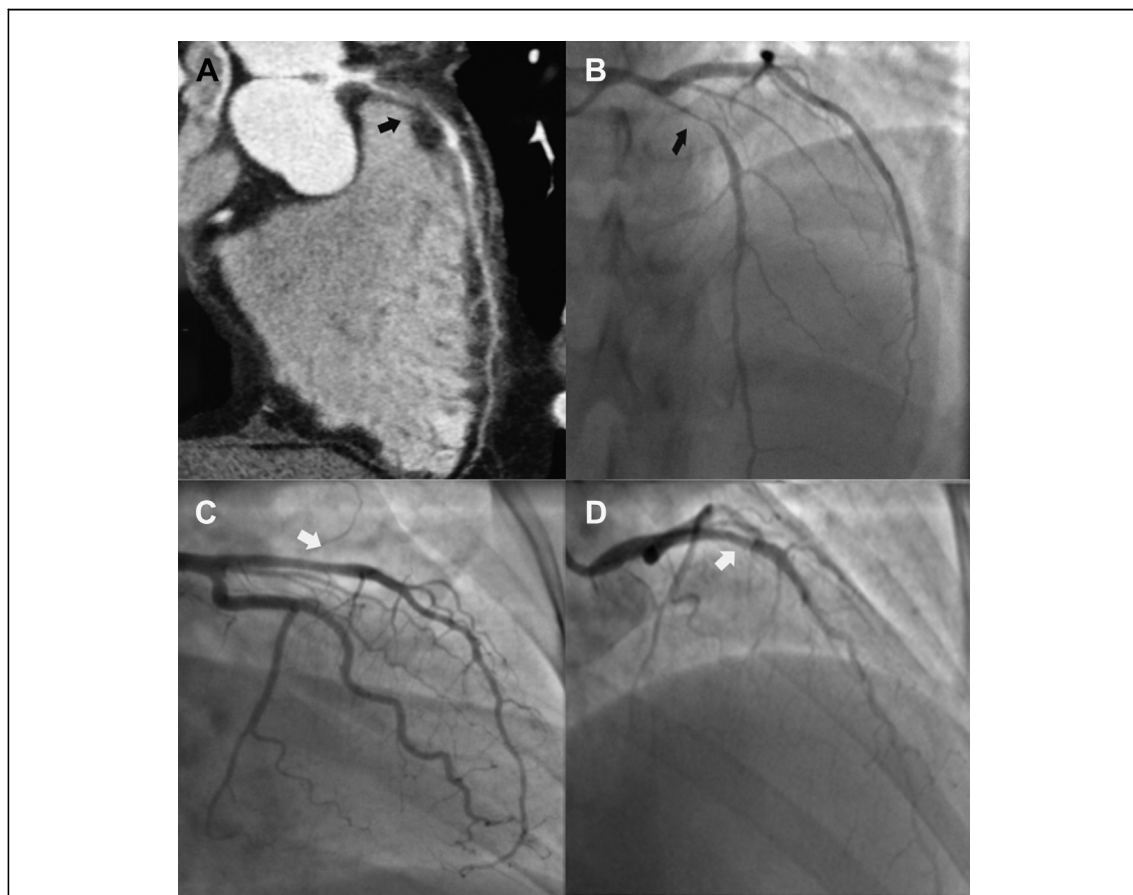


# Is This Spontaneous Coronary Intramural Hematoma or Fibrotic Plaque?

## An Inconsistent Finding Between Optical Coherent Tomography and Intravascular Ultrasound

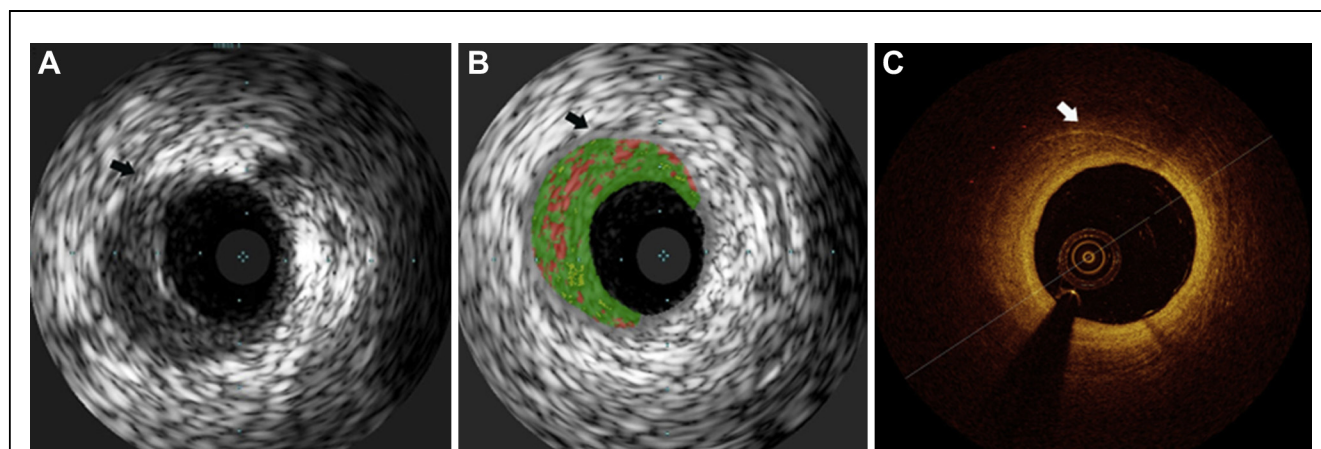
Wei Liu, MD, Yu-Jie Zhou, MD, Yu-Yang Liu, MD, Dong-Mei Shi, MD

Beijing, China



**Figure 1. Computed Tomography Angiography and Coronary Angiography**

(A,B) Both initial computed tomography angiography (CTA) and coronary angiography (CAG) were performed 3 months post-partum showing severe stenosis of ostial left anterior descending artery (LAD, **black arrow**). CTA and CAG were performed 1 day apart; intracoronary nitroglycerin was administered to rule out vasospasm, so the lesion was unlikely caused by coronary spasm. (C,D) Repeat coronary angiography 2 weeks later showed that LAD lesion had greatly resolved (**white arrow**).



**Figure 2. Intravascular Ultrasound and Optical Coherent Tomography**

(A,B) Both gray-scale and virtual histology intravascular ultrasound showed a lesion resembling thick fibrotic plaque (black arrow). (C) Optical coherence tomography (OCT) showed that the intima was intact, and there was a healing intramural hematoma (white arrow) separating the media and adventitia from the 6 to 12 o'clock positions (red dots). The adventitia was clearly seen; there was no shadowing by OCT.

A 29-year-old woman (gravida 2, para 2) 3 months after an uneventful cesarean delivery presented with non-ST-segment elevation myocardial infarction. The patient was healthy and not a smoker. Laboratory test results were unremarkable except for a white blood cell count of 7.46 g/l with 5% eosinophils. Both computed tomography and coronary angiography showed severe ostial left anterior descending artery (LAD) stenosis (Figs. 1A and 1B). Due to the critical lesion location, intervention was deferred. Repeat coronary angiography 2 weeks later showed that the severe stenosis in the ostial LAD had greatly resolved (Figs. 1C and 1D). Intravascular ultrasound (IVUS) examination showed a small localized (7-mm) dense lesion resembling thick fibrotic plaque (Figs. 2A and 2B). Subsequently, optical coherent tomography (OCT) was performed showing that the lesion had an integrated intima and well-defined adventitia, separated by a healing residual intramural hematoma (Fig. 2C). No intervention of the LAD was performed.

A spontaneous intramural hematoma is a subset of spontaneous coronary dissection, in which the dissection is commonly located between the medial and adventitial layer without an intimal tear or atherosclerosis (1). Thus, it may be difficult to visualize the dissection with coronary angiography or CT angiography, and the real frequency may be underestimated (2). An intramural hematoma can only be diagnosed by OCT or IVUS (3).

There are no previous data describing how an intramural hematoma can be depicted by using virtual histology. However, this technique tends to depict an intramural

thrombus as green (masquerading as fibrotic or fibrolipid plaque) (4). Without consideration of the clinical setting, the IVUS images of a healing intramural hematoma in this case were also likely to be mistakenly interpreted as fibrotic plaque. A higher resolution imaging system such as OCT may give a correct diagnosis by better characterization of intramural abnormalities.

**Reprint requests and correspondence:** Dr. Yu-Jie Zhou, Department of Cardiology, Beijing An Zhen Hospital, Capital Medical University, Chao Yang District, Beijing 100029, China. E-mail: yujiezhouanzhen@hotmail.com.

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**Key Words:** intravascular ultrasound ■ optical coherence tomography ■ spontaneous coronary intramural hematoma.